REMARKS

Claims 22-24, 26, 32-33, 36 and 42-43 have been amended, and claim 44 has been added. Claims 22-44 are presently pending.

The specification has been amended to clarify the description and to correct typographical errors uncovered during further review of the application. In addition, the specification has been amended to re-introduce the text at page 4, line 12-page 5, line 7 of the English language translation of International PCT/EP03/03424, which was filed with the request for entry into the national stage transmittal documents on October 12, 2004. The subject text portion inadvertently was deleted from the application by the Second Preliminary Amendment filed February 8, 2005. No new matter has been added based on the amendments to the specification.

In view of such amendments and the following remarks, reconsideration and allowance of the claims, as presently presented, are respectfully requested.

EXAMINER'S ACTION

The 35 U.S.C. § 101 Rejections

Claims 22-43 were rejected under 35 U.S.C. § 101 ("Section 101") as being directed to non-statutory subject matter, because the claims do not set forth a "useful, concrete and tangible result." Independent method claim 22 and independent system claim 36, which have been amended to clarify what is the claimed invention, produce a practical, real world result, namely, an optimized experiment design.

Referring to amended claim 22, the claimed method for designing experiments sets forth a "useful" result, because the "experiment design" that is produced can be used, for example, in chemical research or a manufacturing process. (See specification, for example, at paragraphs [0007]-[0009]). For example, the experiment design may

9

include catalysts, active ingredients, materials or reaction conditions having "certain characteristic numbers" for a selected property, for example, yield selectivity, where the characteristic number of the selected property can impact a manufacturing process or a chemical reaction. (See specification, for example, at paragraphs [0007], [0010] and [0041], and the text portion introduced between paragraphs [0017] and [0018]).

In addition, the method of claim 22 generates a "concrete" result. In the claimed method, a meta layer module "generates evaluation data" based on experimentally determined experiment data. The "evaluation data" influences processing of the experimentally determined experiment data at an optimizer, where the optimizer generates the experiment design data from which an optimized experiment design is obtained. In the claimed method, each of the evaluation data, the experiment design data and the experiment design is determined based upon specific data and, furthermore, constitutes reproducible data.

Further, the method of claim 22 outputs the "experiment design", such that the experiment design is fixed and reportable data useful in a real world, practical application. For example, the outputted experiment design can be implemented as a method for controlling a manufacturing process or developing catalysts for a catalyzed reaction process. (See specification, for example, at paragraphs [0008], [0009] and [0041]).

As to claim 36, this claim is directed to a system for designing experiments that outputs "an experiment design" based on experiment design data generated at an optimizer. Claim 36 includes limitations corresponding to the limitations of claim 22 discussed above, such that claim 36, like claim 22, produces an experiment design having practical, real world applications.

Accordingly, claims 22 and 36, claims 23-35 and 37-43 which depend therefrom, and new claim 44 which depends from claim 36, are directed to statutory subject matter, and therefore, it is respectfully submitted that the rejections based on Section 101 should be withdrawn.

The 35 U.S.C. § 102 Rejections

Claims 22-43 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,996,550 ("Wang et al.").

Independent claims 22 and 36, as amended, claims 23-35 and 37-43 which depend directly or indirectly upon claims 1 or 36, and new claim 44 depending from claim 36 clearly are patentable over Wang et al.

As discussed above, amended claim 22 is directed to a method for designing experiments where, in relevant part, a meta layer module generates evaluation data based on the meta layer module's evaluating experimentally determined experiment data of a first experiment. Further, claim 22 requires that the evaluation data influences processing of the experimentally determined experiment data of the first experiment at a data-driven optimizer. The influencing (tuning) of the optimizer using the evaluation data, which the meta layer module generates based on prior knowledge, e.g., the experimentally determined experiment data, advantageously provides that the optimizer can rapidly converge upon an optimized experiment design, thereby reducing time and material expenditures. (See specification, for example, at paragraphs [0038], [0039] and [0041]).

In contrast to the claimed invention, although Wang et al. performs an optimization using configurations defined from a set of parameters (e.g., materials having desired properties) and a set of constraints on physical operations of an

11

experimental device (see Wang *et al.* at Col. 4, In. 46-56 and Col. 26, In. 1-60), the Wang *et al.* optimization does not account for knowledge acquired from prior experimentation. Nowhere does Wang *et al.* teach or suggest generating evaluation data at a meta layer module, based on the meta layer module's evaluation of experimentally determined experiment data, in other words, prior experimentation knowledge, and then using the evaluation data to influence (tune) optimization processing of the experimentally determined experiment data at the optimizer, as required by claim 22.

Accordingly, claim 22 is patentable over Wang *et al.*

In addition, amended independent claim 36, which claims a system for designing experiments having limitations corresponding to those of claim 22 discussed above, is patentable over Wang *et al.* for the same reasons as set forth above with respect to claim 22.

Further, claims 23-35 and 37-44, which depend directly or indirectly upon claims 22 or 36, are also patentable over Wang *et al.* for the same reasons as set forth above with respect to claim 22 and because of the further restrictions they add.

Claims 23 and 44 require, in relevant part, iteratively processing experimentally determined experiment data of a plurality of experiments at the meta layer module and the optimizer, in the same manner as (set forth in claims 22 and 36, respectively,) for the experimentally determined experiment data for the first experiment, until an optimization goal is reached. Wang *et al.*, which does not describe that experimental data is introduced into a meta layer module that generates evaluation data which, in turn, influences processing at the optimizer, furthermore does not describe iteratively

12

processing experiment data from a plurality of experiments, using the meta layer module and the optimizer, until such time that an optimization goal is reached.

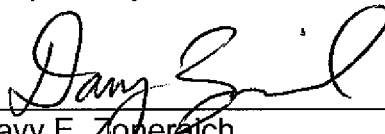Withdrawal of the Section 102 rejections is, therefore, respectfully requested.

CONCLUSION

For the foregoing reasons, it is believed that all of the claims, as presently presented, are patentable.

The Examiner is invited to telephone the undersigned if it is believed that further amendment and/or discussion would help to advance the prosecution of the present application.

Reconsideration and allowance of claims 22-44 are, therefore, respectfully requested.

Respectfully submitted,

Davy E. Zoneralch
Registration Number 37,267

NORRIS, McLAUGHLIN & MARCUS
P.O. Box 1018
Somerville, New Jersey 08876-1018
Phone: (908) 722-0700
Fax: (908) 722-0755
E-Mail: ipdept@nmmlaw.com

Attorney Docket No: 100717-574US